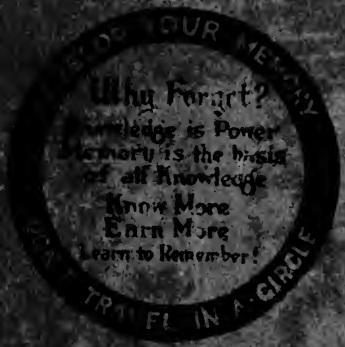
FUNDAMENTALS OF MEMORY DEVELOPMENT

ROWLINGSON



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Revised and Enlarged

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FUNDAMENTALS OF MEMORY DEVELOPMENT

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FOREWORD

Memory is the foundation on which your mental storehouse is built. A poor memory is like a foundation of sand—shifting, unreliable, uncertain. A good memory is like a foundation of rock—secure, certain, enduring. Successful men are men with good memories. The man with an accurate and dependable memory is the man who is marked for advancement.

These lessons are the result of study and research extending over a period of more than four years. The aim has been to make the course concise by omitting useless stunts and other impractical material; at the same time to make it complete by including all of the basic principles of memory development; in short, to make it clear, understandable, and practical, yet thoroughly scientific.

LESSON I

General Considerations

It is important at the outset to understand just what memory is and what is aimed at in its development, for unless we know where we are going, we shall be like the man in the song, "I don't know where I'm going, but I'm on my way."

A very good definition of memory is the one given by the Century Dictionary: "The mental capacity of retaining unconscious traces of conscious impressions or states, and of recalling these traces to consciousness with the attendant perception that they (or their objects) have a certain relation to the past."

Locke's definition is also good: "The power to revive again in our minds those ideas which, after imprinting, have disappeared, or have been, as it were, laid aside out of sight, . . . is memory." In other words, memory is the knowledge of a fact or event which, having disappeared from consciousness, at a later time reappears, together with the additional consciousness that we have thought or experienced it before.

Since the quality and quantity of brain tissue in a given person remains practically fixed, it follows that no system of memory training can enlarge what may be called the

native retentiveness of the individual. The advancement must come in mental habits and in methods of learning; these are capable of almost unlimited improvement. Many bad memories are merely bad habits.

Your body is controlled by your nervous system, comprising brain, spinal cord, and branches extending to every part of the body. It is now an accepted principle in science that the brain may be regarded as a storage-battery, storing a form of energy in many respects like electricity, but which may be called nervous energy. Every activity of the body requires energy, and this energy is supplied from the brain storage-battery. Not the slightest activity of any part of the body can take place unless energy is sent to that part over the nerves, which may be compared to the wires going out from a central power station and carrying electrical energy to all parts of a city. When nervous energy arrives at a muscle it is transformed into motion—a process corresponding to the transformation into motion of the electrical energy arriving in a motor over the wires from the power-house.

Every purposeful act of life which is repeated at greater or less intervals is a habit, formed by the nervous current flowing repeatedly through a certain series of nerve wires and meeting with less resistance to its flow each time. The process may be very roughly illustrated in this way: if you walk across a freshly plowed field, there is consid-

erable resistance to your passage the first time; but if you repeatedly walk over the same course, a path is soon formed which makes walking easy. Any act of mind or body which you repeat from time to time wears a path, so to speak, in your nervous system, and thus forms a habit. It is easily seen from this that you *must* have habits, whether you want them or not; you cannot escape them. Whether the habits you have are to be a help to your progress and your achievement, or whether they are to be the reverse, depends on you. You can make of yourself what you will, by directing your habit formation. Form habits of remembering, and you will have a good memory. If you have formed wrong habits and you want to get rid of them, you have a difficult task; but will-power and perseverance can accomplish it. Form right habits of study, of work, of play, of all the various activities of life, and you can attain any goal within reason that you may set for yourself.

These lessons give you methods for remembering. The first time you try to apply any particular method, you may find it hard, for you are forcing nerve currents over paths they have never traveled before. Keep at it; each repetition wears the path smoother and makes the method easier. Once the habit of remembering is established, it becomes as easy as not remembering.

Our knowledge comes to us through the senses. Each thing that we learn ar-

rives in the brain through one or more of these five channels, or paths: Seeing, hearing, smelling, tasting or feeling. Of these, the first two bring us the greater part of our intellectual knowledge.

Some persons remember best the things they see; such persons are said to have the *visual* type of memory. Others remember better the things they hear; these are said to have good *auditory* memory. In some persons the relative activity of the two types is about even. In addition to these types of memory, there is still another in which the mind retains its impressions best when the person either speaks aloud or writes the information which is to be memorized. This is known as the *motor* type of memory.

In beginning the development of the memory, you should discover as soon as possible whether your memory is predominantly visual or auditory. One of the best ways to go about this is to review in your mind a number of facts which you have acquired in the past few weeks or months, and in each case try to recall whether you first acquired the fact through your eyes or through your ears. Given facts of as nearly as possible the same comparative importance, the method of acquisition which has the greatest number of facts to its credit, is the one which is best developed in you.

Another method of determining this point, and one which will give an indication of the

part played by the motor memory in your case, is as follows:

Have a friend or member of your family make three lists, each containing fifteen unrelated words, on three separate sheets of paper. Read the first list once carefully, then without referring to the paper, see how many you can repeat. Have someone read aloud, once, the second list, and see how many you can remember. Then take the third list, write each word once, and test yourself as before. Following is a list of words which you can use for the last test:

city	native	automobile
ocean	book	magazine
hat	calm	lawyer
lion	chair	simple
ship	excellent	light

When you have determined which is your predominant type of memory, that is the method you should use most frequently, for by so doing you are making the most of your natural faculties. None of the methods, however, should be neglected, and the more of them you use for any given fact, the more certain you are of remembering that fact.

LESSON II

Impression, Attention, Interest

If you will refer to the definitions of memory given at the beginning, you will note that in each of them occurs the idea of the fact or event being *again* in consciousness. Many people fail to remember because they never acquire a first impression. Without a first impression, the best memory in the world is helpless. If you are to remember a fact, that fact must previously have existed in your consciousness for a measurable period of time: there must have been a first impression. No system of memory culture can give you a magic power of making something out of nothing.

The impressions which are best remembered are those which are

(1) New or startling,
(2) Most interesting,
(3) Clearest or most vivid,
(4) Frequently repeated,
(5) Most recently acquired.

(1) One of the chief reasons why we remember the experiences of childhood so much better than those of our later years is that during this period the mind is fresh and

even ordinary facts and events are surprising.

(2) Most persons who say they have poor memories are usually found to have excellent memories for some particular kind of facts—and it is always for something that is of special interest to them. A woman may have a very poor memory for political facts, but an excellent one for the details of a dress which she admires. In the case of a man, this might be reversed. Some persons have a good memory for numbers but a poor memory for words, and vice versa. There are many young office clerks whose memory for business facts is so poor that they never rise above mediocrity, who nevertheless exhibit an amazing capacity for retaining baseball scores and batting averages. If these same young men would take a corresponding degree of interest in their work, and would spend as much time studying and thinking about it, advancement in position and salary would take care of itself. To rise above the other fellow, it is only necessary to do better work than the other fellow.

(3) It is a mistake to blame the memory when the real trouble lies in poor observation. Can you tell the relative position of the horns and ears on a cow? Which way does the head face on a two-cent postage stamp? If you cannot answer such questions as these correctly, it is not because you have

not *seen,* but because you have not *observed* —because you have not *acquired an impression.*

The power of observation can be wonderfully developed. Readers of Kipling's "Kim" will recall the amazingly detailed description by the native Hindu boy of the fifteen precious stones which were shown to him for a few minutes only, and then put out of his sight. You can develop *your* power of observation by practice. As you walk along a business street where there are stores, stop a few minutes before some window containing a number of small articles. A jeweler's window is good. Look over the display carefully, examining each object separately first, then the entire window as a whole. Then pass on and try to recall what is in the window.

Another excellent means of developing the power of observation is by drawing on paper a simple picture of some ordinary object such as an inkstand or a vase. You need not be an artist to do this and the result of your effort may have no artistic value, but that does not matter. You will probably be surprised at the details you will notice that you had not observed before.

In cultivating the power of observation, a little practice repeated *every day* is much more effective than a great effort followed by a period of inaction. Set yourself a little

daily task of observing something carefully, picturing it in the mind in all its details. On the following day call up the picture, reproducing it as clearly as you can, and then compare the original object, and note any inaccuracies. Five minutes a day given to this is one of the best investments of time you can make, and the resulting development of your powers of observation—and consequently, of your memory—will repay you many times over. Accurate observation gives the clear mental impressions which are so essential to good memory.

(4) Frequent repetition of an impression is the method which is perhaps more at the command of the individual than any other. Every mental impression cannot be new or startling; all cannot be equally interesting, and certainly every impression cannot be most recent. We can, however, repeat ideas to ourselves as much as we wish. Probably everyone has heard the old saying, "Repetition is the mother of learning." This is only another way of saying that repetition is the mother of memory. Facts which we find dull but which we nevertheless find it necessary to remember, can be retained by this method.

(5) The only way we can keep recent the impressions we wish to retain is by repetition. When we wish to memorize poetry or any other literary matter word for word, repetition is the method we must employ.

Newly learned facts are retained best when no new mental activity follows the period of acquisition. The new memory material must figuratively "settle down," and is apt to be lost if it is stirred up by other mental engagements.

Attention and Interest

We have already seen that in order to have memory, we must first have an impression. The first step in acquiring an impression is *attention*. The word attention comes from two Latin words meaning to stretch toward. We must *stretch* our mind *toward* the fact or object we wish to remember. If we are *interested* in the fact or object, giving attention is easy; if not, it is more difficult, and it becomes necessary to bring our will-power into play to keep the attention centered, or else find something to which the object is related, that we *are* interested in. The part played by interest in the mechanism of memory is an exceedingly important one. In itself, the average railroad time-table is a rather uninteresting object, but when one begins to plan a trip, and wants to know the time of arrival and departure of trains, that same time-table takes on a very decided interest. If one is interested in one's work, not only is it easier to do that work than something in which one is not interested, but one will be more successful in it than in the uninteresting work.

A cardinal principle to be observed in developing the power or habit of giving attention is to attend to only one thing at a time. It is one of the laws of mind that its attention can be directed to but one thing at a time. Some may apparently attend to two or more things at the same time, but accurate psychological investigation of this phenomenon has shown that in reality the mind is rapidly oscillating from one object of attention to another.

LESSON III

Concentration and Association

The word concentrate comes from the Latin, and means literally to center together. "In concentration, the consciousness is held to a single image; the whole attention is fixed on a single point, without wavering or swerving. The mind—which runs continually from one thing to another, attracted by external objects and shaping itself to each in quick succession—is checked, held in, and forced by the will to remain in one form, shaped to one image, disregarding all other impressions thrown upon it.

"At the beginning of concentration, two difficulties have to be overcome. First, this disregard of the impressions continually being thrown on the mind. The mind must be prevented from answering these contacts, and the tendency to respond to these outside impressions must be resisted; but this necessitates the partial direction of the attention to respond to the act of resisting, and when the tendency has been overcome, the resistance itself must pass. Perfect balance is needed, neither resistance nor non-resistance, but a steady quietude so strong that impressions from outside will not produce any result, not

even the secondary result of the consciousness of something to be resisted.

"Second, the mind itself must hold as sole image, for the time, the object of concentration; it must not only refuse to modify itself in response to impacts from without, but must also cease its own inner activity wherewith it is constantly rearranging its contents, thinking over them, establishing new relations, discovering hidden likenesses and unlikenesses. It has now to confine its attention to a single object, to fix itself on that. It does not, of course, cease its activity, but sends it all along a single channel. Water flowing over a surface wide in comparison with the amount of water, will have little motor power. The same water sent along a narrow channel, with the same initial impulse, will carry away an obstacle. Without adding to the strength of the mind, the *effective* strength of it is immensely increased. Imposing this inner stillness on the mind is even more difficult than the ignoring of outside impacts, being concerned with its own deeper and fuller life. To turn the back on the outside world is easier than to quiet the inner, for this inner world is more identified with the Self—that part of our being which directs the activities of the mind. But keep at it and success will reward your efforts.

"When the mind loses hold of its object—as it will do, time after time—it must be brought back, and again directed to the

object. Often at first it will wander away without the wandering being noticed and the student suddenly awakens to the fact that he is thinking about something quite other than the proper object of thought. This will happen again and again, and he must patiently bring it back—a wearisome and trying process, but there is no other way in which concentration can be gained.

"It is a useful and instructive mental exercise when the mind has thus slipped away without notice, to take it back again by the road along which it traveled in its strayings. This process increases the control of the rider over his runaway steed, and thus diminishes its inclination to escape.

"Consecutive thinking, though a step toward concentration, is not identical with it, for in consecutive thinking the mind passes from one to another of a sequence of images, and is not fixed on one alone. But as it is far easier than concentration, the beginner may use it to lead up to the more difficult task.

"The universal complaint which comes from those who are beginning to practice concentration is that the very attempt to concentrate results in a greater restlessness of the mind. To some extent this is true, for the law of action and reaction works here as everywhere, and the pressure put on the mind causes a corresponding reaction. But while admitting this, we find on closer study

that the *increased* restlessness is largely illusory. The feeling of such increased restlessness is chiefly due to the opposition suddenly set up between the Self, willing steadiness, and the mind in its normal condition of mobility. The Self is accustomed to being carried about by the mind in all its swift movements, as a man is ever being carried through space by the whirling earth. He is not conscious of movement; he does not know that the world is moving, so thoroughly is he part of it, moving as it moves. If he were able to separate himself from the earth and stop his own movement without being shivered into pieces, only then would he be conscious that the earth is moving at a high rate of speed. So long as a man is yielding to every movement of the mind, he does not realize its continual activity and restlessness, but when he steadies himself, when he ceases to move, then he feels the ceaseless motion of the mind he has hitherto obeyed.

"If the beginner knows these facts, he will not be discouraged at the very commencement of his efforts by meeting with this universal experience but will, taking it for granted, go quietly on with his task.

"When a man concentrates his mind, his body puts itself into a state of tension, and this is not noticed by him, is involuntary so far as he is concerned. This following of the mind by the body may be noticed in many things: an effort to remember causes a

wrinkling of the forehead, fixing of the eyes, and drawing down of the brows; anxiety is accompanied by a characteristic expression. For ages, effort of the mind has been followed by effort of the body, the mind being directed entirely toward the supply of bodily needs by bodily exertions, and thus a connection has been set up which works automatically.

"When concentration is begun, the body, according to its wont, follows the mind and the muscles become rigid and the nerves tense; hence, physical fatigue, muscular and nervous exhaustion and headache, sometimes follow in the wake of concentration, and thus people are led to give it up, believing that these effects are inevitable.

"As a matter of fact, they can be avoided by a simple precaution. The beginner should now and again break off his concentration sufficiently to notice the state of his body, and if he finds it strained, tense, or rigid, he should at once relax it; when this has been done several times, the connection will be broken, and the body will remain pliant and resting while the mind is concentrated.

"Concentration should be practiced very sparingly at first, and should never be carried to the point of brain fatigue. A few minutes at a time is enough for a beginning, the time being lengthened gradually as the practice goes on. But however short the time which is given, it should be given regularly.

Steady and regular, but not prolonged practice ensures the best results and avoids strain." (Besant.)

Association

The word associate comes from the Latin, and means to unite to. Our thoughts or ideas are *united to* one another.

"Every thought involves a whole system of thoughts, and ceases to exist if severed from its various correlatives. As we cannot isolate a single organ of a living body, and deal with it as though it had a life independent of the rest, so, from the organized structure of our cognitions, we cannot cut out one and proceed as though it had survived the separation. The development of formless protoplasm into an embryo is a specialization of parts, the distinctness of which increases only as fast as their combination increases; each becomes a distinguishable organ only on condition that it is bound up with others, which have simultaneously become distinguishable organs; and similarly, from the unformed material of consciousness, a developed intelligence can arise only by a process which in making thoughts defined, also makes them mutually dependent—establishes among them certain vital connections, the destruction of which causes instant death of the thoughts." (Spencer.)

The elementary law of association may be stated as follows:

When two ideas have been present in the mind together or in immediate succession, one of them, on recurring, tends to revive the other.

While from the standpoint of the psychologist, association is between ideas, from a practical standpoint it is more satisfactory to speak of the association of objects or of qualities.

Association may be divided into three general classes:

Association by

(1) Inclusion, or similarity;
(2) Exclusion, or contrast;
(3) Concurrence, or coexistence.

(1) Under the head of inclusion we have the following relations:

(a) Whole and part (ship, rudder.)
(b) Genus and species (animal, dog.)
(c) Abstract and concrete (cold, ice.)
(d) Similarity of sound (bell, dell).
(e) Any other relation in which there is something in common between two objects or qualities.

(2) The relation of exclusion or contrast is one of the strongest and most powerful of all the association networks in consciousness. It is invariably present, and tends to become predominant. Things may be unlike in (a) time, (b) relation, (c) space relation, or in all three. When anything is thought of, the opposite state of mind is almost conscious.

The idea of heat has no meaning from the standpoint of consciousness unless there has been something in consciousness that is not heat. The latent consciousness of cold is what gives the meaning to the consciousness of heat. Unless both have been experienced, either one means nothing. Pain cannot exist unless there has been pleasure: the mind could not be aware of one without the other. Such fundamental couplets as these are present in all consciousness, and it is only because things are unlike that we are conscious at all. Every idea in consciousness has no meaning apart from its exact opposite: unless both have been experienced, either one has no meaning.

"The very conception of consciousness, in whatever mode it may be manifested, necessarily implies distinction between one object and another. To be conscious we must be conscious of something, and that something can only be known as that which it is by being distinguished from that which it is not . . . one object must possess some form of existence which the other has not, or it must not possess some form which the other has." (Mansel.)

(3) The relation of concurrence is between things which occur together or in sequence. (Pipe, tobacco; lightning, thunder.) When one attribute of an object is thought of, all other attributes of the object tend to follow in consciousness. All of the

experiences which have been received at the same time tend to return in consciousness when one of that series is brought to consciousness. For example, if you see a person you have not seen in years, it brings back memories of what happened on the day the person was seen years ago. This law is one we make use of in reviving the memories of a particular day. We also make use of it in deciding whether certain memories are real or invented.

Association by concurrence also includes the relation of cause and effect. Certain things cause other things. In the ordinary course of events, one thing produces another: effect follows cause. The percepts resulting from our observation of nature are received in a certain definite order. If the relation of cause and effect is observed, when the cause comes to consciousness, the effect comes to consciousness. Or, when the relation is well established, if the effect is seen, the cause is thought of. In this connection, however, it is to be noted that science deals not with *ultimate* causes, but with *proximate* causes, based on sequence relation. Our system of education weakens the cause and effect association. The average adult past the age of twenty-five or thirty seldom thinks of cause and effect.

LESSON IV

How to Remember Names, Faces and Errands

A good memory for names and faces is a valuable asset to anyone whose business brings him in contact with people. The salesman with a poor memory for names and faces has a handicap which restricts his advancement. Every successful politician finds it necessary to develop this faculty.

To remember faces you must observe faces, compare faces, study faces. When you meet a person for the first time, one or two glances at his face will not be sufficient to insure your remembering him—that is, unless you have a well-developed talent along this line. When a young man meets a young woman to whom he at once takes a liking, or vice versa, there is no trouble about recognition at the second meeting of the two. Why? He is interested in her, or she in him.

Take an interest in the face of every person you meet; notice the nose, the eyes, the eyebrows, the mouth, the chin, the ears, the forehead, the color of the skin, and any peculiarities in the form of any of these features. Remember the principle that a clear first impression is the first essential of memory.

The same holds true in regard to names. Those who complain that they have a poor memory for names are those who give but little attention to names. When introduced to a person they are more or less self-conscious and have their mind on saying "I'm pleased to meet you," or some similar phrase, and are listening to what the stranger says in return so that they do not get a clear first impression of the name. The way to overcome this difficulty is to forget yourself, and concentrate your attention on the stranger's face and name. It is much more important that you get a clear first impression of his name than to hear the words he uses in acknowledging the introduction. If the person making the introduction does not pronounce the name clearly, or it is an unusual name, ask him or the stranger to repeat it. It is better that the owner of the name should repeat it, for this will aid you in associating his face and his name. Then you should repeat the name aloud yourself—thus bringing your motor memory into play.

If you meet several persons during a day or evening, it is an excellent plan, before going to bed at night, to sit down and go over each introduction, recalling the surroundings, the person introduced, his appearance, and his name. *Write* each name, and *speak it aloud,* at the same time trying to form a mental picture of the person. If you will do this faithfully, you will soon find

your memory for names and faces greatly improved.

Remembering Errands

Probably everyone knows how easy it is to forget to mail a letter. The remedy for this is as follows: When starting out with the letter, impress on the mind that the letter is to be put in a street mail-box, and that the sight of a mail-box will recall the mailing of the letter. Then by developing the power of observation, you will not fail to see one or more mail-boxes when passing along the street, and seeing the mail-box will remind you of the letter.

If one has a number of errands to do, it is hardly worth while to attempt to remember them by sheer memory effort, for it is not a case of something you want to retain in the mind permanently. When the errands have been done, the necessity for further mental effort has passed, and in such a case it is much more rational to rely on a written memorandum.

LESSON V

Numbers, Dates, Prices, Etc.

There are various ways of remembering numbers, dates, prices, and other figures, but all are based on the fundamental laws of attention, interest, concentration, and association. Some persons have a remarkable memory for figures, without seeming to use any special method or exerting any particular effort. Most such persons are strong visualizers and remember by what might be called mental photography of the figures—they form strong mental images of the numbers and retain them easily. To those not thus naturally gifted, more conscious effort is necessary.

The volcano of Fujiyama, Japan, is 12,365 feet high. By observing that the first two and last three figures represent respectively the number of months and the number of days in a year, an association is formed, and the number is not forgotten. Suppose it is desired to remember the number 1352; note that the first two figures represent the number of playing cards in any given suit (10 spot cards plus 3 court cards), while the last two represent the total number of cards

in the pack (exclusive of the joker). Such coincidences, of course, are not always to be discovered, but continued practice will reveal them more frequently than might be supposed.

If a reasonable amount of thought fails to reveal an external association for a number, internal relations should be sought for. Thus, Pike's Peak is 14,147 feet high: note the repetition of 14 and that 7 is half of 14. The population of Providence (R. I.), according to the 1910 census, is 224,326; *2* times *2* are *4*, *3* times *2* are *6*. Relations which you discover for yourself will be more easily remembered than those discovered by someone else.

You should adopt the method of retaining numbers which you find easiest. If either of the foregoing methods seem difficult after a fair trial, the visualizing method may be tried. Employing the instructions given in Lesson 2, concentrate the attention on the number and form as clear and vivid a mental picture of it as possible.

For historical dates, an excellent plan is always to think of the event and the date together, so as to establish a firm association; thus, the battle of Waterloo should always be thought of as "Waterloo 1815," the battle of Hastings as "Hastings 1066," and so on. The "Declaration of Independence" should never be thought of without thinking also, "1776." If numbers are connected with

events in this way, the association will be as easy to recall as the association between George and Washington, or between Abraham and Lincoln.

If you have a naturally good memory for words, but a poor memory for figures, you can use to advantage the figure-alphabet, by means of which ordinary English words are made to stand for numbers. This is done by assigning a figure value to each consonant sound. As a number of the consonants are similar in sound, these are grouped together, so that the number of distinctly different consonant sounds is reduced to ten—one for each of the ten digits. The vowels a, e, i, o, u, the "sometimes vowels" w and y, and all silent letters are entirely disregarded and are not given figure values.

The first step in mastering this system is to memorize one consonant for each figure. This is not difficult if the following associations are used:

1 is T because T has 1 down stroke.
2 is N because N has 2 down strokes.
3 is M because M has 3 down strokes.
4 is R because R is the last letter in the word four.
5 is L because in Roman notation L stands for 50; disregarding the 0, we have 5.
6 is J because J is 6 reversed.
7 is K because K follows J in the alphabet.

8 is F because the script small letter f has two loops, like 8.
9 is P because P is 9 reversed.
0 is Z because Z is the first letter of the word zero.

These ten substitutions can be learned in one sitting. Having learned them, the next step is to learn the additional consonants which are grouped with some of those already learned.

Below is given the complete figure alphabet with a key sentence for use in remembering the several letters which represent each of several figures:

1 is t, th or d.
*T*om *TH*um *D*ied.
2 is n only.
3 is m only.
4 is r only.
5 is l only.
6 is j, sh, ch or soft g.
*J*ew *SH*all *CH*oose *G*entile.
7 is k, hard c, hard g, or q.
*K*ings *C*an *G*et *Q*ueens.
8 is f or v.
*F*ull *V*alue.
9 is p or b.
*P*lay *B*all!
0 is z, soft c, or s.
*Z*inc *C*ertainly *S*inks.

It is of prime importance to keep in mind the fact that the translation from letters to figures or vice versa is *always* made *by sound.* Thus sugar is 674, not 074; Asia is 6, not 0; ratio is 46, not 41.

The letter *h* has no figure value alone. It is considered only in the combinations *th* (1), *sh* (6), and *ch* (6). At all other times it is disregarded and treated as a silent letter (which it sometimes actually is). *Ph* with the sound of *f* is translated 8, in accordance with the rule that translation is always made by sound. The ending *ing* is regarded as a unit, and is always translated 7, not 27. Thus, dancing is 1207, king is 77.

Double consonants are translated as if single; appeal is 95 (bill is also 95); witness is 120; miller is 354.

All words can be translated into numbers, but there are some numbers of 3 or more figures for which there are no equivalent English words. This apparent difficulty is easily gotten around by breaking large numbers up into groups of two or three figures. Thus, 1574 is "dull care"; 65004 is "jolly Cicero"; 21868 is "native chef."

Following is an equivalent word for each number from 1 to 100:

1 hat	27 yankee	53 lamb
2 hen	28 navy	54 lawyer
3 haymow	29 nap	55 lily
4 weary	30 mouse	56 lodge
5 lay	31 meadow	57 lake
6 hatch	32 mine	58 olive
7 egg	33 mummy	59 lip
8 hive	34 hammer	60 chess
9 bee	35 mail	61 shed
10 daisy	36 image	62 chain
11 deed	37 hammock	63 gem
12 twine	38 muff	64 chair
13 dime	39 map	65 jelly
14 waiter	40 rose	66 judge
15 hotel	41 road	67 joke
16 dish	42 rain	68 chief
17 dog	43 room	69 ship
18 thief	44 rear	70 case
19 depot	45 rule	71 coat
20 noise	46 arch	72 queen
21 night	47 rug	73 game
22 noon	48 reef	74 car
23 enemy	49 robe	75 eagle
24 Nero	50 lace	76 cage
25 inhale	51 lady	77 keg
26 enjoy	52 lion	78 cave

79 cowboy	87 fog	95 bill
80 face	88 fife	96 page
81 fit	89 fob	97 book
82 fan	90 base	98 puff
83 foam	91 boat	99 pipe
84 fire	92 pen	100 disease
85 flee	93 beam	
86 fish	94 bar	

To find a word or words which will translate any given number, set down the figures with some space between, and under each one the consonants which represent it, thus:

5	1	4	7	0
L	T	R	K	Z
	D		hard C	soft C
	TH		hard G	S
			Q	

Having the consonants in place, vowels to form words are easily filled in. In the above example, several words can be made: LOAD ROCKS is one possibility.

Whenever possible, words should be found which can be *associated* in some way with the fact with which the number is connected.

Another plan of translation is to make up a sentence of as many words as there are figures, and assign a figure value only to the first consonant sound in each word. The Mississippi River is 4382 miles long: *R*iver *M*ississippi *V*ery *W*a*n*dering.

On first reading, some may think that the figure alphabet is a remedy worse than the disease; but if your word-memory is good, and your figure-memory poor, it will pay you to spend the time necessary to master it. Careful study and frequent practise with the method will make you so familiar with it that its use will be easy.

LESSON VI

Verbatim Memorization of Poetry and Prose, Remembering Contents of Books and Articles

The method of memorizing poetry and prose which is about to be described is such a radical departure from the time-honored methods that many on first making its acquaintance are inclined to be skeptical. Actual experience with the method, however, usually converts such persons into enthusiastic advocates.

The method is so simple that it can be stated in a very brief space. It consists in reading aloud the entire poem or selection, starting at the beginning and reading through to the end, keeping the attention on the subject-matter, and fully understanding the meaning of each word and sentence. Having completed one reading aloud, start at the beginning and read aloud to the end again. Repeat again, reading aloud as before, making three times in all. Read the poem or selection aloud three times, twice a day at intervals of at least six hours. A convenient way is to do it the first thing in the morning, and again at night. In a few days you will find that you can begin to repeat parts of the selection without looking at it. Encourage

yourself in doing this, but not until you are sure of saying it right while not looking. In from ten to twenty days you will know the selection perfectly, and will be able to repeat it without hesitancy. Furthermore, after the occasion for its use is past, it will not be forgotten in a few weeks, as is the case with matter learned in the old way. With an occasional repetition, you can retain it for years. The author of these lessons can still repeat passages from Shakespeare learned by this method more than ten years ago.

To insure success, it is only necessary to observe the following three simple rules:

(1) Always read *aloud.*

(2) Read through from beginning to end *each time.* It matters not whether the selection is one you can read (aloud) in three minutes, or whether it takes an hour; the rule is to be followed just the same.

(3) Don't let the mind wander. Keep it on the subject-matter of the selection.

The time required for learning varies with the individual, with the degree of concentration, and with the nature of the selection. Rhythmic poetry is more quickly learned than prose. If it is necessary to learn something within a week, this can be done if the selection is short, by reading aloud four times at each sitting instead of three, and doing it three times a day instead of twice.

Remembering Contents of Books and Articles

If you are to remember what you read, the fundamental principles of attention, interest, concentration, and association must be brought into play. If you want to master the contents of a book or magazine article with accuracy, it is best to make a written abstract (or concise summary) of it. A chapter can usually be summed up in a paragraph; a paragraph (of the book) in a sentence. Read over your abstract carefully from time to time so that the knowledge will become a part of your mental organization.

Conclusion

Memory being a function of the mind, a sound memory goes with a sound mind and a sound body. The habitual use of alcohol or drugs is incompatible with a dependable memory. Good memory work cannot be done when there is great mental or bodily fatigue, and it should not be attempted at such times.

"The secret of a good memory is the secret of forming diverse and multiple associations with every fact we care to retain. . . . What is this but thinking *about* the fact as much as possible? The man who thinks over his experiences most and weaves

them into the most systematic relations with each other will be the one with the best memory.

"The art of remembering is the art of thinking. Our conscious effort to remember a fact should not be directed at impressing and retaining it, but at connecting it with something already known. The connecting is the thinking, and if we attend clearly to the connection, the connected thing will certainly be likely to remain within call." (William James.)

These lessons contain no magic power. One reading of them will not give you a perfect memory. They show you how you can improve your memory *provided you put the principles into practice:* do this, and as surely as effect follows cause, your memory will be improved.

HOW TO STUDY EFFECTIVELY

In order to study or do any other form of mental work effectively, you must be in good physical condition. It is true that the mind has a certain influence over the body, but in accordance with the law of action and reaction, it is equally true that the body has an influence on the mind.

Look first, therefore, to your health. If you have physical defects such as decaying teeth, defective eyesight, obstructed nasal breathing, or any other trouble which interferes with clear mental action, have it attended to by a competent physician. Adopt rational and normal ways of eating, sleeping, working, playing, and resting. In seeking guidance on these things, beware of the diet cranks, food faddists and extremists of all kinds. Their number is legion. Pin your faith to those who are accepted as leaders by the majority of rational men; whose teachings are based on real science and not on pseudo-science. "How to Live," by Fisher and Fisk, and "Personal Hygiene," by Pyle, are two books either of which is a safe guide to the hygiene of mind and body.

The whole man, however, is more than mind and body. He is also spirit, and spirit must not be ignored. If you have been ignoring spirit, you should by all means read "In

Tune with the Infinite," by Trine, and "The Life of Reality," by Randall.

In order to study effectively, you must provide certain external conditions which are favorable to this work. A quiet place, a temperature of 68° to 70° F. with sufficient moisture in the air, good light, a comfortable chair, a desk or table of suitable height—all these things contribute to effective study. When you begin a period of study, take on the attitude of attention, and concentrate your mind on your work.

Study with the intent to learn and to remember permanently. It has been found that the intent which accompanies the learning process affects the length of time of retention. It is well known that material crammed before an examination is forgotten soon afterward. There are two reasons for this: first, the facts are taken into the mind accompanied by the feeling that if they are retained until the examination is over, that is sufficient; and second, permanent memory depends on the laws of association, and when facts are crammed rapidly, there is not sufficient time to form associations.

Don't study under the delusion that you are doing it for the teacher. You are doing it for your own advancement. Have a motive, or several motives. These may be a recognition of the future value of the subject, a desire to excel or to win approval; it may even be a desire to get your money's worth out

of what you are paying for. The stronger the incentive, the better work you will do.

Before beginning to study advance work, review the previous lesson. When studying new material, put the most time and thought to the points you find hardest to grasp. All mental impressions fade with time: in view of this fact, the learning of important parts of your lessons must be carried beyond the point necessary for immediate recall. If you have difficulty in accurately recalling a fact or a group of facts immediately after you have been studying them, you may be sure that you have not learned them well enough to recall them at some time in the future. Things that are important and that you want to be sure of retaining for future use you should learn so well that on trying to recall them immediately afterward you can do so easily, accurately, and without hesitancy.

Keeping in mind the principle that newly learned facts are retained best when no new mental activity follows the period of acquisition, take periods of rest at intervals, especially after learning something the future value of which you recognize.

Think over your study work. Talk about it. If you think you might bore your friends or members of your family by telling what you learn to them, tell it to an imaginary listener, in the quiet of your room with the door closed. Draw pictures or diagrams of anything that can be thus represented. Work

out for yourself specific examples of all general rules and principles. When the subject-matter of your study is complex, make a written outline of it. Learn definitions thoroughly, and be sure that you understand them. Avoid an attitude of mere acquisition: think of your brain not as a receptacle into which something is poured, but as an interlacing of multitudinous fibers, with infinite possibilities of interconnection which no one ever exhausts. Seek other relations between facts than those given in the books you study.

The runner, nearing the point at which it seems that he can run no longer, gets a "second wind," and is able to finish the race. Similarly the brain worker, if mental application be pushed past the first feeling of fatigue, gets a mental second wind: he taps new levels of energy which enable him to continue study with renewed vigor. This does not mean that rest is never needed, but it does mean that one need not stop work at the first feeling of fatigue.

Finally, and perhaps most important of all, make practical application of your knowledge as soon as possible, and as often as possible. Using or expressing knowledge fixes it in the mind and gives a feeling of mastery which contributes to the self-confidence that plays such a large part in success.